

WHAT IS CLAIMED IS:

1. A multi-layered film comprised of at least a first layer and a second layer in contact with said first layer, wherein

said first layer is comprised of an amount of silicon in the range of about 1% to about 60 %, an amount of carbon in the range of about 10% to about 90%, an amount of oxygen in the range of 0 % to about 35%, and an amount of fluorine in the range of 0% to about 67%, each by weight based on total weight; and

said second layer is comprised of an amount of silicon in the range of about 1% to about 50%, an amount of carbon in the range of about 10% to about 60%, an amount of oxygen in the range of 0 % to about 30%, and an amount of fluorine in the range of 0 % to about 67%, each by weight based on total weight,

wherein said multi-layer film has a dielectric constant of about 3.0 or lower, and

wherein said second layer has an elemental composition that is substantially different from said first layer.

2. The multi-layered film of Claim 1 wherein said first layer is comprised of an amount of fluorine in the range of 0% to about 10%, and wherein said second layer is comprised of an amount of fluorine in the range of about 20 % to about 65%, each by weight based on total weight.

3. The multi-layered film of Claim 1 in which the interface between said first layer and said second layer is graded.

4. The multi-layered film of Claim 1 wherein said first layer and said second layer each independently have a thickness in the range of about 150 Å to about 2500 Å.

5. The multi-layered film of Claim 1 which is further comprised of a third layer in contact with said second layer,

wherein said third layer is comprised of an amount of silicon in the range of about 1% to about 60%, an amount of carbon in the range of about 10% to about 90%, an amount of oxygen in the range of 0% to about 35%, and an amount of fluorine in the range of 0% to about 65%, each by weight based on total weight, and

wherein said third layer has an elemental composition that is substantially different from said second layer.

6. The multi-layered film of Claim 5, wherein said first layer is comprised of an amount of fluorine in the range of 0% to 10%, said second layer is comprised of an amount of fluorine in the range of about 20% to about 65%, and said third layer is comprised of an amount of fluorine in the range of 0% to about 10%, each by weight based on total weight.

7. The multi-layered film of Claim 5, wherein said first layer is comprised of an amount of fluorine in the range of 0% to 10%, said second layer is comprised of an amount of silicon in the range of about 10% to about 35%, and said third layer is comprised of an amount of fluorine in the range of 20% to about 65%, each by weight based on total weight.

8. The multi-layered film of Claim 5, wherein the interface between said third layer and said second layer is graded.

9. The multi-layered film of Claim 5 wherein said first layer and said second layer each independently have a thickness in the range of about 150 Å to about 2500 Å.